ABSTRACT

A polycyclic fused ring type π-conjugated organic material (VIIa, VIIb, VIIc, VIId) is obtained in the following manner. That is, as shown in Scheme 1 below, a starting material (I) is dimetalated with an organometallic base. The starting material (I) thus dimetalated is trapped with an organosilicon reagent (i: (1) n-BuLi or t-BuLi; (2) HMe_2SiCl). As a result, an intermediate is obtained. Thereafter, the intermediate is allowed to react with a metal reductant. This causes an intramolecular reductive cyclization reaction to proceed. As a result, a dianion intermediate is produced. The dianion intermediate is trapped with an electrophile (ii: (1) LiNaph, THF, rt, 5 min; (2) electrophile or NH_4Cl) In this way, the polycyclic fused ring type π-conjugated organic material is obtained. The polycyclic fused ring type π-conjugated organic material, an intermediate therefor, a method for producing the polycyclic fused ring type π-conjugated organic material, and a method for producing the intermediate make it possible to provide a polycyclic fused ring type π-conjugated organic material having excellent light-emitting and charge-transporting properties.